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The Role of Peer Effects in Corporate Employee Welfare Policies

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This paper investigates the role of peer effects in the employee welfare policies of organizations. Using US panel data for a sample of 11,451 firm-year observations from 1996 to 2017, we find that firms' employee welfare decisions are driven by their peers and show that peer firms play a significant role in defining corporate employee welfare policies. Our findings are robust to various sensitivity checks, including alternative definitions of employee welfare, alternative peer proxies and several identification strategies. Our additional analysis shows that herding behaviour is prevalent in followers, who mimic leaders' behaviour, but we do not find any such relationship for industry leaders. Further, we show evidence suggesting that mimetic and normative isomorphic pressures are driving the peer effects. Finally, we examine the economic consequences of peer mimicking in employee welfare policies and show that it improves focal firms' value and innovation. Our findings on firms' peer effects and herding behaviour have policy implications.

Introduction

The competition in today's world forces firms to adopt employee-friendly policies and workplace standards. It is, therefore, vital to comprehend the mechanism through which employee policies are shaped. Earlier studies in this area suggest that employee-friendly practices positively influence productivity and performance (Ertugrul, 2013; Jiao, 2010). However, it is assumed in earlier research that a firm's employee welfare policies are made autonomously, irrespective of the policies of their peers and competitors, which simply means that every firm undertakes such policies according to its business environment. Cao, Liang and Zhan (2019) document that the impact of the social component of peers' corporate activities, which also include employee welfare, is as yet an unexplored area. As such, the importance of peer firms' actions and characteristics is mostly disregarded in a firm's employee welfare policies.

Conversely, peer firms play a strong role in determining the corporate policies of firms, and researchers have contributed to this stream of literature by providing evidence that shows the importance of social interaction and peer effects in a firm's financial policies. For example, a firm's corporate investment policy largely depends on its peer firms' investment and cash flow management strategies (Dougal, Parsons and Titman, 2015). Similarly, there is evidence suggesting that the financing decisions of a company's local peers significantly influence its own capital structure decisions (Gao, Ng and Wang, 2011;

Leary and Roberts, 2014). Recently, the adoption of employee welfare policies has been on the rise worldwide, and it is one of the top environmental, social and governance (ESG) issues. This is evident from the fact that around 48% of the S&P500 companies in the USA discuss their employee treatment, highlighting issues such as business continuity, safety and support programmes (Norton, 2020). Thus, there is an obvious question to ask in whether peer firms' strategies matter in shaping a firm's employee welfare policies.

This paper examines the effect of peer firms' employee welfare strategies on a firm's employee welfare policies. The motivation for investigating this question arises from the fact that human capital is considered as one of the most important assets of any organization. The significance of skilled human resources can be ascertained from the fact that, in today's competitive world, skilled employees are key to process innovation and quality improvements (Zingales, 2000). Thus, to retain their skilled workforce, firms have to invest in their human capital, at least if their industry peers and competitors are doing so; otherwise, they risk losing this asset because employees can choose to switch employment if other firms offer added benefits.

Using a sample of 11,451 firm-year observations for the period 1996–2017, we examine the role of peer firms' welfare policies in shaping the corporate welfare policies of US organizations. We measure a firm's peers through Hoberg and Phillips' (2016) Text-based Network Industry Classification (TNIC). Specifically, peers are defined as firms with similar product descriptions in their 10-K filings as the focal firm. This measure uses the number of common words in a firm's product description to describe its industry and ranges from 0% to 100%. The results show that firms' employee welfare policies largely depend on the welfare policies of their product market peers. After controlling for various peer and firm-level characteristics, including industry and year fixed effects, the results remained persistent and unaltered. Our results are also robust to the various alternative sample composition and other sensitivity checks, including alternate definitions of peer firms and alternate proxies for employee welfare.

Also, as peers' employee welfare policies may be related to some common unobservable factors, endogeneity has been regarded as one of the main concerns in research involving peer firms or industry averages. For example, peers' average employee welfare may be higher because the industry is labour-intensive, there is high competition or scarcity of human resources in that industry. In relation to this, reverse causality is a potential threat as it is possible that the employee welfare policy of the firm is so important that it impacts on peer policies. We address these concerns in our robustness checks and through the application of instrumental variables. We utilize state welfare as an instrument to revalidate our main results. Moreover, in the additional analysis, we test whether followers mimic the leader's behaviour or otherwise. Consistent with the reputational herding model, we find that followers herd the leaders in their welfare policies. Finally, we also show that mimetic and normative pressures drive the peer effects, and following peers in employee welfare results in better performance and innovation.

We make novel contributions to the existing literature on peer effects and the employee welfare policies of firms. Primarily, we are the first to show that the employee welfare policies of a firm are mainly responsive to the policies of their peers and show that firms do not make their employee welfare policies in isolation. We thus claim that firms' employee welfare policies are mainly based on their product market peers. Therefore, this study contributes to the literature on employee welfare by showing that peers are among the most important determinants of a firm's policies towards its employees. Secondly, we add to the debate on peer effects in finance (Chen and Chang, 2019; Grennan, 2019; John, Knyazeva and Knyazeva, 2011; Leary and Roberts, 2014) by showing that not only financial policies but also human capital policies are influenced by the choices of a firm's peers. Thirdly, we contribute to the existing literature on organizational isomorphism (Deephouse, 1996; DiMaggio and Powell, 1983; Mizruchi and Fein, 1999; Villadsen, 2013) by showing that the channels of mimetic and normative isomorphism drive the mimicking behaviour in firms' employee welfare policies. Finally, taking employee welfare as an important determinant of firm performance, we examine the economic consequences of following peers' welfare policies and show that following peers enhances a firm's value and innovation.

The rest of the paper is organized as follows. The next section provides an overview of the existing literature and develops the research hypotheses. The third section presents the research design,

data and sample composition. The fourth section reports and discusses the summary statistics and main empirical results and findings. The fifth section presents several robustness tests, including issues related to endogeneity. The final section concludes the paper by presenting a summary of the main results, along with the limitations and avenues for future research.

Literature and hypothesis development

Employee welfare policy

The human resource theories by Herzberg, Mausner and Snyderman (1959) and Maslow (1943) view employees as the core assets of a company, who can add substantial value to the firm through innovation and client relationships. Skilled human capital is therefore regarded as a critical input for innovation. For example, Hall and Bagchi-Sen (2002) show that skilled employees' salaries account for more than 50% of research and development (R&D) expenditures. However, the real nature of human capital investment is more about the treatment of employees in organizations, such as their participation in decision-making, flexible working schedules and health and safety (Chen *et al*., 2016). As a result, twenty-first-century organizations not only need to consider the financial needs of their employees, but also their welfare and working environment. In this regard, some recent studies' findings demonstrate that employee welfare policies positively affect firms' operational and financial performance (Edmans, 2011; Ertugrul, 2013; Jiao, 2010). Overall, there is a consensus among scholars that companies that invest in human capital outperform their industry benchmarks.

The last few years have witnessed a substantial increase in research on employee welfare and its impact on firm performance. For example, Verwijmeren and Derwall (2010) find that companies with a high score in the employee well-being index have lower debt ratios, and consequently this reduces the probability of bankruptcy for these companies. Similarly, Boubaker *et al*. (2019) demonstrate that firms devoted to employee well-being strengthen their relationships with stakeholders and that such firms prefer long-term debt over and above short-term debt, which is beneficial in the long run as it reduces uncertainty and risk. Similarly, recent studies suggest that better employee treatment results in a low probability of default (Bae, Kang and Wang, 2011), low probability of misconduct (Zhang, Wang and Kong, 2020), better internal control and a low likelihood of financial restatements (Guo *et al*., 2016) and reduced borrowing costs (Chi and Chen, 2020). Overall, these studies emphasize high employee welfare as an essential element in a firm's competitiveness, not only to beat its peers, but also to retain its skilled workforce.[1]

Over the last two decades, the role of peer effects in corporate decision-making has gained popularity in the management and social sciences literature.[2] In this regard, some recently published studies have shown peer effects on corporate policies, such as corporate social responsibility (Husted, Jamali and Saffar, 2015; Jiraporn *et al*., 2014), corporate fraud (Parsons, Sulaeman and Titman, 2018), dividend payouts (Grennan, 2019; John, Knyazeva and Knyazeva, 2011), corporate cash holdings (Chen and Chang, 2019), risk aversion and trust (Ahern, Duchin and Shumway, 2014), accounting restatements (Gleason, Jenkins and Johnson, 2008), tax avoidance (Li, Winkelman and D'Amico, 2014) and stock market participation (Hong, Kubik and Stein, 2004), among others. However, despite a large body of literature on peer effects and corporate policies, the role of peer effects in employee welfare policies remains as yet an unexplored research area.

Mimicking peers in employee welfare policies can best be described as isomorphism-based organizational mechanisms. DiMaggio and Powell (1983) define isomorphism as a 'constraining process that forces one unit in a population to resemble other units that face the same set of environmental conditions', and identify three main mechanisms through which isomorphism works: *coercive pressures*, *mimetic pressures* and *normative pressures*. Coercive isomorphism refers to the pressure from other organizations on whom the organization is dependent, or the expectations of the society/culture in which the organization operates. These pressures may result from a government's

[1]Hale (1998) concludes that 58% of their sample organizations claim to have difficulty retaining their employees.
[2]See e.g. Adhikari and Agrawal (2018), Bailey *et al*. (2018), Brueckner and Largey (2008), Bursztyn *et al*. (2014), Ellison and Fudenberg (1995), Georgarakos *et al*. (2014), Glaeser, Sacerdote and Scheinkman (1996), Kaustia and Knüpfer (2012), Lundborg (2006), among others.

policy change, new legislation, imposition of specific standard operating procedures, or other environmental or social obligations that force firms to become more homogenous.

Mimetic isomorphism refers to a situation where organizations mimic others in times of uncertainty over technology, goals or policy implications. When organizations are faced with uncertainty or ambiguous problems, they look at what others are doing and mimic them. This type of mimicking may result from three types of imitation: trait-based imitation, frequency-based imitation and outcome-based imitation. In trait-based imitation, the firm follows the model organizations that are more successful or have a reputation in the market (Haunschild and Miner, 1997); in frequency-based imitation, a firm facing uncertainty follows the policies adopted by other firms; while in outcome-based imitation, firms adopt practices that were successful in the past and yielded positive results for other firms (Haunschild and Miner, 1997).

The last mechanism of organizational isomorphism is the normative pressures that primarily result from professionalization. Professionalization refers to following the standards, norms and practices collectively issued by member organizations to determine working conditions and methods in the field (DiMaggio and Powell, 1983). This is compelling for organizations to adopt industry norms and standards in their policymaking.

The main focus of this paper is based on examining the mimetic pressure of organizational isomorphism, as peer following in corporate policies is linked to mainly information (trait and outcome-based imitation by following firms with a high reputation or firms with high success) and competition (frequency)-based motives (Lieberman and Asaba, 2006). Employee welfare can be linked to mimetic pressure, as firms follow others to be competitive or improve their reputation and learn from others. Therefore, we argue that, despite the substantial amount of research contributions in this area, which cover different aspects of employee welfare policies and related issues, previous studies have not yet explored the influence of peer effects on the employee welfare policies of organizations. This paper addresses this research gap and investigates firms' peer effects on their employee welfare policies. While doing so, we examine the mimetic channel of isomorphism and shed light on the role of coercive and normative pressures in driving employee welfare policies.

Hypothesis development

According to the human resource theory, firms give special attention to human capital investment[3] and regard employee welfare as one of the most important channels to maximize the benefits from that investment. In line with the human capital investment theory and labour retention perspective of Hale (1998), one can assume that peer effects play a crucial role in firms' employee welfare policies. Our argument is based on the model of conformity by Bernheim (1994), which suggests that people may desire to keep the same consumption level as that which is mutual in their social group. Hence, socially tied individuals to the reference group may want to have the same employment benefits as the reference group. Moreover, evidence in previous literature suggests that economic agents follow their peers by observing other agents' choices, obtained through social interaction, rather than using their own information, without knowing the costs and benefits of alternative choices.[4] Thus, we posit that similar mimicking is possible in employee welfare policies and propose the following hypothesis:

H1: Firms' employee welfare policies are positively associated with the welfare policies of their peer organizations.

Managers' reputational concerns in the labour market also force them to adopt similar employee welfare policies as their competitors, irrespective of whether such policies maximize shareholder wealth. Scharfstein and Stein (1990) argue that managers follow others while ignoring their private information and consider it rational because of reputational concerns. Accordingly, the resulting unprofitable decisions are not as bad for the managers' reputation if others are also doing it, as

[3]See Cao, Liang and Zhan (2019), Hirshleifer and Teoh (2009), John and Kadyrzhanova (2008), Knyazeva and Knyazeva (2012), Liu and Wu (2016), among others.

[4]For example, Banerjee (1992) observes that people do what others do rather than using their own information. Ellison and Fudenberg (1995) argue that economic agents rely on the information obtained via social interaction and make decisions on the basis of that information.

they will share the blame if a failure occurs. Chevalier and Ellison (1999) examine reputational herding in their work on the labour market for mutual fund managers, and find evidence suggesting that young managers are more likely to be punished when they deviate from the herd and less likely to be punished when they follow their senior counterparts. Similarly, Leary and Roberts (2014) argue that the fundamental channel behind herding is not irrational following but due to information or incentive distortion or limited cognitive abilities of the manager. Furthermore, Banerjee (1992) argues that managers tend to ignore their own information and follow other managers.

In line with the above arguments, reputational herding may be one of the reasons why firms follow their peers. Moreover, managers may lack specific expertise, knowledge or skills, or they might perceive that they are less informed than their industry peers, due to which they follow other firms. This argument is validated by the research findings of Leary and Roberts (2014), who suggest that herding behaviour is mainly due to reputational and learning models, and argue that the fundamental mechanism behind herding is not irrational following but information or incentive distortion, or limited cognitive abilities of the manager. We therefore propose our second research hypothesis as follows:

H2: There is a leader–follower relationship in employee welfare policies wherein follower firms mimic the leaders' employee welfare policies.

Likewise, the competitive labour market model based on Hale (1998) stresses that firms are forced to offer market-based compensation and other benefits for the sake of retaining their skilled workforce. Since we proxy peers through product market competition, similar skills are required in each product market; hence, employees may voluntarily quit and join other product market peers with better employment prospects and benefits if not satisfied with their current employer. Several costs are associated with this turnover, including separation cost, loss of productivity, replacement costs – such as advertising and recruiting new personnel, administration costs, training and development costs and loss of knowledge capital (Dalton, Todor and Krackhardt, 1982; Harris, Tang and Tseng, 2002; Hom and Griffeth, 1995; Smith and Watkins, 1978; Tracey and Hinkin, 2006). Indeed, Wright and Bonett (2007) find that employee well-being reduces turnover; thus, to save this huge cost, firms may be forced to provide similar incentives as offered by their product market peers.

A firm's adoption of employee welfare policies can affect its peer firms in the labour market competition, which may force them to respond by improving their own employee welfare policies. For example, a firm can adopt an employee-friendly workplace policy that develops a tolerance for failure and positively affects the employee's engagement, thus improving the firm's innovation (Chen *et al.*, 2016). As a firm becomes the first mover in the industry to adopt such a workplace policy, it can gain a competitive advantage in the product market through innovation; subsequently, other firms will follow the earlier firm to gain competitive advantage through improving the workplace and employee welfare.

Thus, the competitive labour market may force firms to provide market-based compensation and other benefits to retain skilled labour, as it is challenging to do so in today's competitive business environment (Hale, 1998). Moreover, according to Seldon and Sowa (2015), employee turnover cost is about 50–200% of employee annual salaries, which forces firms to provide benefits equivalent to their competitors and peers to retain skilled labour. Therefore, it is expected that peer following in employee welfare and well-being is stronger in highly competitive markets. In line with these arguments, we posit our third hypothesis as follows:

H3: Peer following in employee welfare policy is stronger in highly competitive markets.

Research design, data and sample composition

Employee welfare index

We measure employee welfare through the Kinder, Lydenberg, Domini Research & Analytics (KLD) database, which measures firms' CSR attributes based on seven dimensions: community, diversity, employee relations, environment, product, human rights and corporate governance, for various indices (e.g. S&P500 Index, Domino Index (DS 400), as well as 3000 largest public companies by market capitalization).

Following previous studies (e.g. Ghaly, Dang and Stathopoulos, 2015; Landier, Nair and Wulf,

2009; Verwijmeren and Derwall, 2010), we also exploit employee relations data from the KLD database as a proxy for employee welfare, because the use of this database to measure employee welfare has several advantages. For example, this database uses multiple pre-specified criteria to measure each dimension, allowing various aspects of that dimension to be covered. Sodeman (1995) mentions that it is far more specific than the Fortune rankings, with an enriched measurement along with a number of widely used social-investment criteria. Further, this database's coverage is comprehensive and includes multiple stakeholders and annualized longitudinal assessments (Ruf, Muralidhar and Paul, 1998). Due to its relative advantages, academic research widely uses this database to examine a firm's relations with its employees (Bae, Kang and Wang, 2011). The employee relations dimension of KLD assigns a strength score to each firm annually based on parameters of union relations, employee involvement policies, retirement benefit strengths, profit-sharing programmes, health and safety standards and other strengths. The weakness score dimensions include union relations, workforce reduction, health and safety standards, retirement benefit concerns and other weaknesses. The details of each parameter are defined in Appendix A.

We use all US firms in the KLD stats database over 1996–2017 as our initial sample. After merging this data with Compustat using the global company key (GVKEY), we obtain the final sample of 11,451 firm-year observations. The most widely used proxy for employee relations is the net score obtained by summing the strengths score and subtracting the aggregate concerns score to arrive at the net score for each year. Ghaly, Dang and Stathopoulos (2015) and Verwijmeren and Derwall (2010) used this measure as a proxy for employee well-being in their studies, as follows:

$$Emp\_welfare_{i,t} = \sum Strength_{i,t} - \sum Weakness_{i,t} \quad (1)$$

where $Emp\_welfare_{i,t}$ = employee welfare score for firm i in year t; $\sum Strength_{i,t}$ = sum of strengths for firm i in year t; $\sum Weakness_{i,t}$ = sum of weaknesses/concerns for firm i in year t.

However, Mănescu (2011) argues that this approach lacks comparability, as strength and concerns vary across time and dimensions for almost all the KLD indicators, except product safety and environmental dimensions. Hence, we also use his proposed measure by taking average strengths and then subtracting average weaknesses to obtain the net average score per year for the employee relations dimension, illustrated by the following equation:

$$Avg\_Emp\_welfare_{i,t} = \frac{\sum Strength_{i,t}}{u_{i,t}} - \frac{\sum Weakness_{i,t}}{k_{i,t}} \quad (2)$$

where $Avg\_Emp\_welfare_{i,t}$ is the annual average employee welfare score for firm i; $u_{i,t}$ is the number of strengths for firm i in year t; $k_{i,t}$ is the number of weaknesses for firm i in year t; $\sum Strength_{i,t}$ and $\sum Weakness_{i,t}$ remain the same, as defined in Equation (1).

Table 1 presents the year-wise breakdown of the employee welfare score over the period from 1996 to 2017. The data in Table 1 shows that the average employee welfare score for our sample is 0.063. Moreover, about 61% of the firm-year observations in our sample have zero employee welfare scores, 19.30% have negative employee welfare scores and 19.20% have positive employee welfare scores. Table 1 also documents that the summary statistics of our sample's employee welfare score are slightly higher than those of previous studies (Ghaly, Dang and Stathopoulos, 2015; Verwijmeren and Derwall, 2010).

Proxies for peers

We use the TNIC developed by Hoberg and Phillips (2016) as a proxy for peer firms.[5] This measure uses the number of common words in a firm's product description to describe its industry and ranges from 0% to 100%. Foucault and Fresard (2014) highlight three essential features of this measure. Firstly, unlike SIC or NAICS, it changes over time as the firm modifies its product line, so our proxy measures the real-time peers, hence reducing the selection bias in our sample. Secondly, firms with the same TNIC are exposed to common shocks because of the similarity in products they supply to the market. This is not possible

[5]Data is available at http://hobergphillips.usc.edu/industryclass.html.

Table 1. Summary statistics of employee welfare scores

Year	N	Percent	Mean	Standard deviation	1st percentile	1st quartile	Median	3rd quartile	99th percentile
1996	118	1.03%	0.220	0.859	−2	0	0	1	2
1997	125	1.09%	0.376	0.930	−2	0	0	1	3
1998	131	1.14%	0.473	0.923	−1	0	0	1	3
1999	132	1.15%	0.538	0.911	−1	0	0	1	3
2000	145	1.27%	0.572	0.977	−1	0	1	1	3
2001	232	2.03%	0.233	0.891	−1	0	0	1	3
2002	245	2.14%	0.196	0.959	−2	0	0	1	3
2003	709	6.19%	−0.173	0.725	−2	−1	0	0	2
2004	723	6.31%	−0.225	0.829	−2	−1	0	0	2
2005	712	6.22%	−0.288	0.871	−2	−1	0	0	2
2006	687	6.00%	−0.298	0.894	−2	−1	0	0	2
2007	702	6.13%	−0.283	0.954	−3	−1	0	0	2
2008	729	6.37%	−0.251	0.976	−3	−1	0	0	3
2009	754	6.58%	−0.276	0.970	−3	−1	0	0	3
2010	766	6.69%	−0.064	0.621	−2	0	0	0	2
2011	738	6.44%	−0.016	0.602	−2	0	0	0	2
2012	727	6.35%	0.551	1.330	−1	0	0	0	5
2013	675	5.89%	0.718	1.232	−1	0	0	1	5
2014	684	5.97%	0.231	0.554	−1	0	0	0	3
2015	637	5.56%	0.394	0.779	−1	0	0	1	4
2016	573	5.00%	0.413	0.803	0	0	0	1	3
2017	507	4.43%	0.278	0.551	0	0	0	0	2
Total	11,451	100%	0.063	0.946	−2	0	0	0	3

This table reports summary statistics of employee welfare score, where the sample contains 11,451 firm-year observations over the period between 1996 and 2017.

when firms are defined based on production processes. Lastly, each firm has its own separate peer group because of the relativity in defining industry members. Thus, all the above characteristics make TNIC peers a robust measure for defining the peer firms based on a firm's product description in its 10-K filings, as using TNICs to define peers creates a unique set of peers for each firm that can change over time based on the changes in the firm's product description. While our main analysis uses TNIC-based peers, we also run a robustness test using peers based on the Fama and French 48-industry classification.

Control variables

Following Brockman, Luo and Xu (2020), we control for different firm-level characteristics, comprising long-term debt to total assets (*Leverage*), natural log of total assets (*Size*), return on assets (*ROA*), market to book ratio (*MTB*), dividend dummy, tangibility, pension expenses per worker, R&D intensity, sales growth and number of employees. The description of the variables and data sources is included in Appendix B.

Empirical model

As the firm's peer effects operate through two different channels, actions and characteristics, it is difficult to empirically identify such effects, mainly because of the 'reflection' problem (Manski, 1993). Differentiating between the two channels also poses identification problems, which Manski (1993) overcomes by bifurcating the action-based peer effects from characteristic-based peer effects. We also use a similar strategy in our empirical model. Specifically, we include peer firm average characteristics and control, or firm-level characteristics, through the following empirical model:

$$y_{i,j,t} = \beta \overline{y}_{-i,j,t} + \gamma' \overline{X}_{-i,j,t} + \lambda' X_{i,j,t} + \delta' \mu_j + \phi \nu_t + \varepsilon_{i,j,t} \quad (3)$$

where i, j, t refer to firm, industry and year, respectively; $y_{i,j,t}$ refers to the employee welfare score of the firm computed from Equations (1) and (2);

Table 2. Descriptive statistics

Variables	Observ-ations	Mean	Standard deviation	1%	5%	Q1	Median	Q3	95%	99%
Dependent variable										
Emp. Welfare	11,451	0.063	0.947	−2.000	−1.000	0.000	0.000	0.000	2.000	3.000
Emp. Welfare2	11,451	0.005	0.201	−0.500	−0.250	0.000	0.000	0.000	0.400	0.6666667
Independent variable										
Peer Emp. Welfare	11,451	0.073	0.599	−1.333	−1.000	−0.206	0.000	0.333	1.000	2.000
Peer Emp. Welfare2	11,451	0.007	0.131	−0.333	−0.200	−0.053	0.000	0.067	0.214	0.393
Firm-specific factors										
MTB	11,451	3.154	2.941	−0.553	0.633	1.438	2.303	3.738	8.693	16.779
ROA	11,451	6.910	9.497	−23.906	−6.441	0.078	6.890	12.590	22.739	31.332
Leverage	11,451	11.990	15.811	0.000	0.000	0.037	2.907	20.745	45.272	64.697
Size	11,451	7.207	1.639	4.226	4.808	5.950	7.044	8.255	10.246	11.579
Tangibility	11,451	16.936	17.675	0.026	0.072	2.756	11.670	25.398	56.047	75.359
Dividend dummy	11,451	0.449	0.497	0.000	0.000	0.000	0.000	1.000	1.000	1.000
Pension per worker	11,451	2.065	2.411	−0.976	0.000	0.466	1.359	2.763	6.702	13.554
Research intensity	11,451	0.215	0.369	0.000	0.000	0.009	0.061	0.255	0.948	1.984
Sales growth	11,451	9.740	20.765	−32.457	−15.336	0.000	4.681	15.646	48.273	99.493
Employees	11,451	2.511	1.749	−1.120	−0.224	1.218	2.514	3.708	5.443	6.580
Peer firm averages for control variables										
MTB	11,451	3.183	1.926	0.544	1.039	2.043	2.818	3.817	6.308	10.702
ROA	11,451	6.722	6.135	−3.693	−0.034	0.227	6.656	10.700	16.917	23.615
Leverage	11,451	11.639	11.009	0.000	0.098	2.180	8.834	17.702	32.466	48.617
Size	11,451	7.216	1.122	4.999	5.718	6.426	7.009	7.920	9.291	10.401
Tangibility	11,451	16.759	15.452	0.059	0.099	6.092	12.932	24.275	50.080	65.515
Dividend dummy	11,451	0.437	0.360	0.000	0.000	0.125	0.333	0.750	1.000	1.000
Pension per worker	11,451	0.238	0.301	0.000	0.000	0.020	0.094	0.410	0.834	1.300
Research intensity	11,451	10.148	13.191	−20.172	−5.874	0.107	8.127	18.446	32.441	46.078
Sales growth	11,451	2.055	1.815	−0.036	0.185	0.958	1.650	2.620	5.372	9.276
Employees	11,451	2.505	1.293	0.071	0.653	1.427	2.435	3.492	4.650	5.508

This table reports the summary statistics of all regression variables. Dependent variables are the measure of employee welfare based on KLD data. Data contains 11,451 firm-year observations from 1996 to 2017 with the matched control variables. Peer firm averages represent variables constructed as the average of firms within TNIC-based industry-year combinations, excluding the ith observation. Firm-specific factors represent the variables corresponding to firm i's value in year t. Appendices A and B provide detailed descriptions of all the variables.

$\bar{y}_{-i,j,t}$ refers to the average employee welfare score of industry peers based on the firm's TNIC-based peers, excluding firm i; $\bar{X}_{-i,j,t}$ and $X_{i,j,t}$ refer to peer firms' averages based on TNIC peers (excluding firm i) for each control variable and firm-specific characteristic, respectively; $\delta'\mu_j$ and ν_t refer to industry and year fixed effects, respectively; and $\epsilon_{i,j,t}$ is the firm-year-specific error term. We are interested in the coefficients β and γ' that explain the peer effects through peer firms' actions and characteristics, respectively.

Results and discussion

Summary statistics

Table 2 presents summary statistics for our sample of 11,451 firm-year observations containing 1,487 unique firms. All financial variables are winsorized at the 1st and 99th percentiles to lessen the impact of extreme observations and remove any data coding errors. Like Leary and Roberts (2014), variables are grouped into peer firm averages and firm-specific factors. The first category comprises the average of all firms in an industry-year combination, excluding the ith observation. The second category comprises firm i's value at time t. Our employee welfare variable mean and standard deviation values of 0.063 and 0.947 are relatively comparable to previous literature (Ghaly, Dang and Stathopoulos, 2015; Verwijmeren and Derwall, 2010) using the KLD employee welfare score in their research. Moreover, the sample consists of relatively large firms, as measured using the natural logarithm of total assets with a mean value of 7.207 compared to the median value of

7.044. Other control variables are relatively similar to those reported by Ghaly, Dang and Stathopoulos (2015).

Table 3 highlights a few important results from the pairwise correlation matrix of all the variables used in our analysis. Firstly, our employee welfare variable is significantly related to the TNIC-based peers' average employee welfare score (pairwise correlation of 0.628), which gives a preliminary assurance of our main hypothesis's validity. Secondly, none of our control variables are highly correlated with our main independent variable, which provides some assurance that multicollinearity is not a severe issue. To further check whether these variables are collinear, we perform the variance inflation factor (VIF) test. Our VIF tests are considerably lower in untabulated results than the standard threshold limit of five (Choi *et al*., 2012; Montgomery and Peck, 1982) for all our regression variables, suggesting that multicollinearity is not a problem in our sample.

Peer effects in employee welfare

This section reports the result of the regression models to examine the peer effects in firms' employee welfare policies. Table 4 shows the result of multivariate regressions after controlling for various peer and firm characteristics. In all the models in Table 4, the dependent variable is calculated as in Equation (1), while the variable of interest and other peer averages are calculated based on TNIC-based peers. All firm-specific characteristics represent the values of firm i at year t. The results show that our variable of interest is positively significant at the 1% level in specifications (columns 1 to 4) in Table 4, which strongly supports our *H1* that firms do follow their peers in adopting employee welfare policies. The results are persistent after controlling not only for peer average and firm-specific characteristics, but also industry and year fixed effects. These results also support the labour retention perspective of Hale (1998) and the social group perspective of Bernheim (1994).

Using OLS regression in column 1, we find a significant positive relationship between a firm's employee welfare policy and its TNIC-based peers' welfare policies in the presence of all the control variables and controlling for industry and year fixed effects. Most of the control variables also show significance with the firm's employee welfare policy. The results in column 1 also reveal that the effect of other peer characteristics on a firm's employee welfare policies is significant (except market to book, sales growth and peers' average employees), indicating that these peer characteristics also influence firms' employee welfare policies in addition to peer employee welfare, thus validating the argument of Manski (1993) that peer effects operate through both actions and characteristics. However, all three characteristics, as described above (market to book, sales growth and peers' average employees), are less significant compared to peer firms' employee welfare policies, as can be seen by the t-statistics and coefficients in column 1 of Table 4, suggesting that the principal channel through which peer firms may impact a firm's employee welfare policies is through action (peer employee welfare), rather than characteristics.

To further validate our results, we use alternate estimation techniques in columns 2–4. Specifically, we use Newey–West and Prais–Winsten estimation techniques in columns 2 and 3, respectively, to overcome any autocorrelation and heteroscedasticity in the error terms in the model. In contrast, in column 4 we utilize weighted least squares estimation, where the weight is the inverse of the yearly observations per industry (where the industry is defined based on Fama and French's 48-industry classification). Our results are positive and statistically significant in all alternate specifications from columns 2–4, providing strong evidence of peer effects in the firm's employee welfare policies. Thus, alternative estimation techniques strongly support *H1*. Nonetheless, most of the control (firm-specific) variables' results are consistent with those obtained in earlier studies (e.g. Brockman, Luo and Xu, 2020).

Who mimics who?

Leaders versus followers. This section empirically tests *H2* regarding the leader–follower relationship in the firm's employee welfare mimicking policy. Specifically, we examine whether non-successful companies follow successful ones due to reputation (but not vice versa). To empirically investigate this issue, we divide our sample into three groups based on various success measures: market share, firm age and profitability. Based on Leary and Roberts (2014), we define leaders (followers) as those in the top (bottom)-third ranking within each year based on the above measures.

Table 3. Pearson correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) Emp. Welfare	1													
(2) Emp. Welfare2	0.927***	1												
(3) Peer Emp. Welfare	0.628***	0.605***	1											
(4) Peer Emp. Welfare2	0.583***	0.656***	0.927***	1										
(5) MTB	0.032***	0.015	0.027**	0.005	1									
(6) ROA	0.051***	0.000	−0.068***	−0.118***	0.292***	1								
(7) Leverage	−0.089***	−0.127***	−0.129***	−0.177***	0.140***	0.124***	1							
(8) Size	0.255***	0.198***	0.168***	0.141***	−0.044***	0.148***	0.203***	1						
(9) Tangibility	−0.104***	−0.155***	−0.210***	−0.265***	0.079***	0.284***	0.410***	0.098***	1					
(10) Dividend dummy	0.111***	0.086***	0.052***	0.040***	−0.013	0.212***	0.064***	0.439***	0.141***	1				
(11) Pension per worker	0.134***	0.114***	0.086***	0.074***	−0.011	0.014	0.043***	0.330***	−0.082***	0.252***	1			
(12) Research intensity	0.075***	0.049***	0.093***	0.052***	0.173***	−0.186***	−0.035***	−0.171***	−0.197***	−0.292***	0.0707***	1		
(13) Sales growth	−0.078***	−0.081**	−0.092***	−0.106***	0.238***	0.118***	0.036***	−0.159***	−0.001	−0.190***	−0.105***	0.212***	1	
(14) Employees	0.145***	0.091***	0.042***	0.019*	−0.046***	0.240***	0.199***	0.845***	0.288***	0.462***	0.077***	−0.409***	−0.198***	1

This table reports the Pearson correlations for the regression variables. The sample contains 11,451 US firm-year observations over the 1996−2017 period. Firm-specific factors represent the variables corresponding to firm i's value in year t. Appendices A and B provide detailed descriptions of all the variables. *, ** and *** denote statistical significance at the 10%, 5% and 1% levels, respectively.

Table 4. Multivariate regressions

Variables	(1) OLS	(2) Newey–West	(3) Prais–Winsten	(4) WLS
Peer Emp. Welfare	0.962***	0.962***	0.814***	0.962***
	(40.27)	(51.46)	(35.72)	(65.93)
MTB	0.003	0.003	0.003	0.002
	(0.66)	(0.87)	(0.81)	(0.65)
ROA	0.010***	0.010***	0.008***	0.010***
	(5.82)	(7.77)	(6.18)	(9.64)
Leverage	−0.004***	−0.004***	−0.002***	−0.004***
	(−4.04)	(−5.42)	(−3.10)	(−5.83)
Size	0.162***	0.162***	0.128***	0.151***
	(5.41)	(8.14)	(5.47)	(9.29)
Tangibility	0.007***	0.007***	0.005***	0.006***
	(3.63)	(5.21)	(3.47)	(6.79)
Dividend dummy	0.114***	0.114***	0.102***	0.106***
	(2.67)	(3.90)	(3.23)	(4.98)
Pension per worker	0.027***	0.027***	0.015**	0.025***
	(2.64)	(3.88)	(2.22)	(5.46)
Research intensity	0.231***	0.231***	0.171***	0.231***
	(3.66)	(4.93)	(3.47)	(6.43)
Sales growth	−0.001*	−0.001**	−0.001***	−0.001**
	(−1.84)	(−1.99)	(−2.89)	(−2.33)
Employees	−0.011	−0.011	0.000	−0.011
	(−0.41)	(−0.59)	(0.02)	(−0.66)
Peer_MTB	−0.010	−0.010*	−0.007	−0.009
	(−1.49)	(−1.68)	(−1.24)	(−1.56)
Peer_ROA	−0.009***	−0.009***	−0.008***	−0.009***
	(−3.72)	(−4.34)	(−3.83)	(−4.40)
Peer_Leverage	0.004***	0.004***	0.002*	0.004***
	(2.68)	(3.30)	(1.80)	(3.24)
Peer_Size	−0.166***	−0.166***	−0.112***	−0.154***
	(−4.53)	(−6.27)	(−4.04)	(−6.13)
Peer_Tangibility	−0.007***	−0.007***	−0.004***	−0.006***
	(−3.23)	(−4.47)	(−2.75)	(−5.07)
Peer_Dividend dummy	−0.110**	−0.110***	−0.102**	−0.106***
	(−2.20)	(−2.82)	(−2.58)	(−2.86)
Peer_Pension per worker	−0.019*	−0.019**	−0.008	−0.018**
	(−1.69)	(−2.32)	(−0.99)	(−2.48)
Peer_Research intensity	−0.247***	−0.247***	−0.159**	−0.241***
	(−2.77)	(−3.53)	(−2.34)	(−4.14)
Peer_Sales growth	0.001	0.001*	0.001	0.002*
	(1.61)	(1.76)	(1.33)	(1.88)
Peer_Employees	0.020	0.020	0.027	0.018
	(0.54)	(0.76)	(0.98)	(0.71)
Constant	0.113	0.113	−0.022	0.568
	(0.62)	(0.80)	(−0.13)	(0.86)
Observations	11,451	11,451	11,451	11,451
Year fixed effect	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes
Firm cluster effect	Yes	Yes	Yes	Yes
R square/F statistics	0.476	1662***	0.369	0.485

This table reports the result of our main regression for employee welfare and the industry employee welfare score measure based on annual average using Text-based Network Industrial Classification (TNIC). The dependent and independent variables are net employee welfare score and industry-level employee welfare score in all the models, respectively. Peer firm averages represent variables constructed as the average of firms within TNIC-based industry-year combinations, excluding the ith observation. Firm-specific factors represent the variables corresponding to firm i's value in year t. Appendices A and B provide detailed descriptions of all the variables. *, ** and *** represent significance at 10%, 5% and 1%, respectively.

Table 5. Who mimics who?

Panel A: Followers' reaction to the rest of the sample

	Employee welfare		
Variable	Low market share firms	Young firms	Small firms
Lagged Peer Emp. Welfare remaining sample	0.051***	0.059*	0.042*
	(3.05)	(1.82)	(1.73)
Lagged peer averages of firm characteristics	Yes	Yes	Yes
Lagged firm-specific factors	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	2,872	4,036	2,929
R square	0.208	0.259	0.213

Panel B: Leaders' reaction to the rest of the sample

	Employee welfare		
Variable	High market share firms	Old firms	Large firms
Peer Emp. Welfare remaining sample	0.063	0.041	0.077
	(0.84)	(0.97)	(1.22)
Peer averages of firm characteristics	Yes	Yes	Yes
Firm-specific factors	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Observations	1,688	3,149	3,435
R square	0.352	0.275	0.311

Panel C: Competition and employee welfare peer effects

	(1)	(2)
Variables	Low competition	High competition
Peer Emp. Welfare	0.997***	0.983***
	(42.4)	(26.58)
Constant	0.01	−0.13
	(0.07)	(−0.65)
Observations	4,870	4,870
Firm-specific factors	Yes	Yes
Peer averages of firm characteristics	Yes	Yes
Year fixed effect	Yes	Yes
Industry fixed effect	Yes	Yes
Firm cluster effect	Yes	Yes
R square	0.586	0.469

This table presents the reaction of followers and leaders towards the rest of the sample firms. The dependent variable in all the regressions is the firm's employee welfare score. The independent variable in Panel A (Panel B) is peer firms' average employee welfare score, except for the followers (leaders), where peers are defined based on the Fama and French 48-industry classification. Followers (leaders) are defined as those having a bottom (top)-third ranking within the year based on market share, firm age and firm size. In Panel C, we divide firms into low (high) competition based on the annual industry median based on product-market fluidity. Lower (higher) values of product market competition correspond to low (high) competition. Firm-specific factors represent the variables corresponding to firm i's value in year t. Appendices A and B provide detailed descriptions of all the variables. *, ** and *** represent significance at 10%, 5% and 1%, respectively.

Table 6. Robustness tests

Variables	(1) Alternate dependent variable	(2) Excluding the crisis period	(3) Alternate peer definitions based on FF 48-industry classification	(4) Lagged independent and control variables	(5) Change regressions	(6) Employee welfare without zero
Peer Emp. Welfare2	0.982***	–	–	–	–	–
	(47.33)	–	–	–	–	–
Peer Emp. Welfare	–	0.971***	0.141***	0.534***	0.762***	1.018***
	–	(38.87)	(2.72)	(18.49)	(28.71)	(33.12)
MTB	0.000	0.002	−0.002	0.004	0.002	−0.006
	(0.39)	(0.31)	(−0.44)	(0.81)	(0.53)	(−0.63)
ROA	0.002***	0.011***	0.011***	0.010***	0.007***	0.020***
	(5.88)	(6.36)	(6.89)	(5.47)	(4.26)	(5.96)
Leverage	−0.001***	−0.004***	−0.005***	−0.005***	−0.000	−0.008***
	(−3.72)	(−3.91)	(−5.13)	(−4.38)	(−0.49)	(−3.88)
Size	0.031***	0.178***	0.148***	0.183***	0.053	0.234***
	(5.02)	(5.94)	(5.35)	(5.56)	(1.25)	(3.89)
Tangibility	0.001***	0.006***	0.004***	0.007***	0.004**	0.014***
	(3.71)	(3.43)	(2.74)	(3.51)	(2.15)	(4.33)
Dividend dummy	0.020**	0.134***	0.076*	0.091*	0.101**	0.107
	(2.36)	(3.32)	(1.94)	(1.85)	(2.25)	(1.38)
Pension per worker	0.005**	0.015	0.012	0.028**	0.006	0.046**
	(2.33)	(1.56)	(1.48)	(2.37)	(0.75)	(2.42)
Research intensity	0.039***	0.215***	0.317***	0.249***	0.154**	0.525***
	(3.16)	(3.44)	(5.60)	(3.62)	(2.26)	(4.05)
Sales growth	−0.000	−0.001*	−0.001***	−0.001	−0.001**	−0.002**
	(−1.40)	(−1.67)	(−2.98)	(−1.02)	(−2.36)	(−2.18)
Employees	−0.009	−0.018	−0.009	−0.013	0.011	−0.042
	(−1.61)	(−0.64)	(−0.38)	(−0.42)	(0.26)	(−0.71)
Constant	0.046	0.090	−1.147*	−0.028	−0.037	−0.694*
	(1.18)	(0.49)	(−1.84)	(−0.11)	(−0.80)	(−1.81)
Observations	11,451	9,266	11,337	9,408	9,408	4,407
Peer averages of firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Firm cluster effect	Yes	Yes	Yes	Yes	Yes	Yes
R square	0.487	0.482	0.285	0.361	0.317	0.681

This table reports the robustness of our main regression for employee welfare and industry employee welfare. In column 1, we redefine our dependent variable as the average employee welfare score calculated based on Equation (2) and calculate our independent variable as the industry-level employee welfare score based on TNIC peers. In column 2, we exclude the crisis period and rerun our baseline model using the net employee welfare score and its peer averages as a dependent, and independent, variable respectively. In column 3, we redefine the peer firms based on the Fama and French 48-industry classification and calculate the main independent variable as the average employee welfare score of FF 48-industry peers, excluding firm i. In column 4, we rerun our baseline model using the net employee welfare score and lagged TNIC-based peer averages for our main independent and control variables. In column 5, we use the first differences of dependent, independent, control and their peer averages and rerun our baseline model. Lastly, in column 6, we drop the employee welfare score that equals 0 and rerun our baseline model. Appendices A and B provide a detailed description of all the variables. *, ** and *** represent significance at 10%, 5% and 1%, respectively.

We run a regression for the subsample of followers (the bottom third of the total sample) where the dependent variable is the followers' employee welfare score. The independent variable is the average employee welfare score of the rest of the sample, excluding the followers' average employee welfare score. The idea here is to see whether followers mimic the policies of their counterparts, or otherwise. The results are reported in Panel A of Table 5. We find that followers – as defined by those that lie in the bottom third of the sample based on market share, firm age and profitability – mimic the behaviour of the rest of the firms in the sample.

Table 7. Instrumental variable analysis

	(1)	(2)	(3)
	2SLS		GMM
Variables	Peer employee welfare	Employee welfare	Employee welfare
State welfare instrument	0.009*	–	–
	(1.69)	–	–
Peer Emp. Welfare (instrumented)	–	3.131*	0.903***
	–	(1.79)	(65.12)
Lagged Emp. Welfare	–	–	0.375***
	–	–	(56.80)
MTB	−0.003	0.010	0.014***
	(−1.48)	(1.49)	(6.65)
ROA	−0.000	0.010***	0.001
	(−0.22)	(6.60)	(1.38)
Leverage	−0.000	−0.004***	−0.002***
	(−1.10)	(−3.16)	(−4.56)
Size	−0.022***	0.216***	0.225***
	(−2.78)	(4.69)	(14.78)
Tangibility	−0.000	0.005***	0.001**
	(−0.04)	(3.92)	(2.55)
Dividend dummy	−0.032***	0.161**	0.050***
	(−2.79)	(2.52)	(2.88)
Pension per worker	0.006**	0.017	0.006**
	(2.21)	(1.37)	(2.25)
Research intensity	0.013	0.186***	0.230***
	(0.72)	(3.29)	(6.21)
Sales growth	0.000	−0.001*	−0.001**
	(0.38)	(−1.85)	(−2.51)
Employees	0.031***	−0.088	−0.136***
	(3.82)	(−1.47)	(−8.53)
Constant	−1.213***	2.728	0.089
	(−17.33)	(1.31)	(1.58)
Observations	9,750	9,750	7,683
Peer averages of firm characteristics	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
F test of the excluded instruments	2.86*	–	–
Under-identification test	2.87*	–	–
F statistics/Wald chi square	–	44.05***	9.09***
Sargan (p-value)	–	–	0.703
AR(1) test (p-value)	–	–	0.000
AR(2) test (p-value)	–	–	0.353

This table presents instrumental variable (2SLS) results, dynamic GMM estimated coefficients and t (z) statistics. The dependent variable is indicated at the top of each column. The instrument is the state welfare index composed by taking the average of firm i's TNIC-based nonlocal peer firms' state welfare score. Peer firm averages represent variables constructed as the average of firms within TNIC-based industry-year combinations, excluding the ith firm. Firm-specific factors represent the variables corresponding to firm i's value in year t. Appendices A and B provide detailed descriptions of all the variables. *, ** and *** represent significance at 10%, 5% and 1%, respectively.

We also run a regression for the subsample of leaders (the top third of the total sample) where the dependent variable is the leaders' employee welfare score, and the independent variable is the average employee welfare score of the rest of the sample, excluding the leaders' average employee welfare score. The idea here is to see whether leaders mimic the policies of their follower peers. The results are reported in Panel B of Table 5. Interestingly, we do not see any herding or mimicking behaviour across high market cap firms, old firms and large firms. These results help us understand that followers mimic the employee welfare policies of other peers. However, leaders' employee welfare policies are insensitive to similar policies of other peer firms, thus validating our reputational-based herding hypothesis (*H2*). Overall, these results strongly support

Table 8. Channels of peer effects in employee welfare

	Coercive pressure		Mimetic pressure		Normative pressure
	(1)	(2)	(3)	(4)	(5)
Variables	Reaction to state welfare policy	Reaction to peers within industry inside the state	Competition (TNIC HHI)	Information asymmetry (analyst coverage)	Peers based on Fortune 100 best companies to work for
State_welfare	0.008	–	–	–	–
	(0.60)	–	–	–	–
Peers_inside_State	–	−0.039	–	–	–
	–	(−1.52)	–	–	–
Peer Emp. Welfare	–	–	1.033***	0.652***	–
	–	–	(22.40)	(13.66)	–
Peer Emp. Welfare*TNIC HHI	–	–	−0.156*	–	–
	–	–	(−1.69)	–	–
TNIC HHI	–	–	0.057	–	–
	–	–	(1.02)	–	–
Peer Emp. Welfare*Analyst coverage	–	–	–	0.022***	–
	–	–	–	(7.93)	–
Analyst coverage	–	–	–	0.008***	–
	–	–	–	(3.16)	–
Welfare_Fortune_Peers	–	–	–	–	0.734***
	–	–	–	–	(6.13)
Constant	−0.173	−0.737**	0.010	−0.130	0.113
	(−0.68)	(−2.54)	(0.07)	(−0.65)	(0.36)
Observations	11,410	7,733	4,870	4,870	8,375
Firm-specific factors	Yes	Yes	Yes	Yes	Yes
Peer averages of firm characteristics	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes
Industry fixed effect	Yes	Yes	Yes	Yes	Yes
Firm cluster effect	Yes	Yes	Yes	Yes	Yes
R square	0.289	0.274	0.586	0.469	0.27

This table examines the channels of peer effects in employee welfare policy. Columns 1 and 2 examine the coercive pressure channel wherein the firm's employee welfare policy is regressed on state-level welfare and TNIC peers inside the state, respectively. Columns 3–6 examine the mimetic pressure through a low and high level of competition and information asymmetry (IA). Low and high values are based on the annual industry median based on product-market fluidity (for competition) and analyst forecast dispersion (IA). Higher (lower) values of product market competition (analyst forecast dispersion) correspond to high (low) competition (IA). Column 7 reports the results for normative pressure by using the welfare scores of TNIC peers that are in the list of 100 best companies to work for. The list is published every year by *Fortune* magazine. Appendices A and B provide detailed descriptions of all the variables. *, ** and *** represent significance at 10%, 5% and 1%, respectively.

the reputation-based herding behaviour and are in line with Leary and Roberts (2014), who show that firms follow their peers due to reputational concerns.

High versus low competition. Next, we examine the competition channel by dividing our firms into low and high-competition samples using the product market fluidity as the proxy for competition. Hoberg and Phillips (2016) propose that product market fluidity measures the competitive threats of rival firms. The proxy measures the similarity of words between the firm's and its rivals' products, taken from the product description in its 10-K filings, which varies yearly as the firm changes its product line. Based on the product market fluidity, firms below (above) the annual median observations are classified as facing low (high) competition. We run separate regressions on both the subsamples and report the results in Panel C of Table 5. We find strong peer effects in the firms' employee welfare policies, irrespective of product market competition intensity. The results also highlight an important

Table 9. Economic consequence of peer following in employee welfare (2SLS)

	Tobin's Q		Innovation			
Variables	(1) First-stage Emp. Welfare	(2) Second-stage Tobin's Q	(3) First-stage Emp. Welfare	(4) Second-stage No. patents	(5) First-stage Emp. Welfare	(6) Second-stage No. citations
Peer Emp. Welfare	0.983***	–	1.043***	–	1.046***	–
	(64.56)	–	(53.63)	–	(38.52)	–
Emp. Welfare (instrumented)	–	0.033*	–	0.264***	–	0.207***
	–	(1.71)	–	(8.33)	–	(3.92)
Constant	0.032	2.021***	0.089	0.009	0.005	2.471***
	(0.76)	(14.28)	(0.58)	(2.19)	(0.03)	(6.24)
Observations	10470	10470	6561	6561	3610	3610
Firm-specific controls	Yes	Yes	Yes	Yes	Yes	Yes
Peer averages of firm characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R square	0.453	0.608	0.466	0.487	0.413	0.546

This table presents the two-stage least square regression estimating the relationship between employee welfare and firm value and innovation. In the first-stage regression, the dependent variable is the firm's *Emp. Welfare* and the independent variable is *peer Emp. Welfare*, wherein peers are based on TNIC classification. Columns 1 and 2 report the results of the first and second-stage regression of two-stage least squares (2SLS), estimating the relationship between employee welfare and firm value using *peer Emp. Welfare* as an instrument for the firm's *Emp. Welfare*. In the second-stage regression, the dependent variable is Tobin's Q and the independent variable is instrumented employee welfare from the first-stage regression. Columns 3–6 report similar 2SLS regression, wherein we analyse the impact of the firm's employee welfare policy on its innovation through the number of patents and citations, respectively. Appendices A and B provide detailed descriptions of all the variables. *, ** and *** represent significance at 10%, 5% and 1%, respectively.

finding that firms do not follow others in employee welfare only to gain a competitive advantage or reduce costs. These results also support our previous finding on reputation-based herding as these unprofitable decisions are not as bad for the managers' reputations if others are also doing it, as they share the blame in the case of failure (Scharfstein and Stein, 1990).

Robustness tests

This section reports several robustness tests that further validate our previous results regarding the role of peer effects in corporate employee welfare policies. In line with previous studies, including that of Mănescu (2011), we use average employee welfare scores as our alternative dependent variable for the sensitivity checks. Table 6 reports the results of regressions using the average employee welfare score as a proxy for employee welfare. In column 1 of Table 6, we repeat the same regression as in column 1 of Table 4, with the alternative proxy for employee welfare, but our results remain consistent in all regression specifications, showing positive and significant peer effects in firms' employee welfare policies.

We then changed the sample composition in column 2 by excluding the financial crisis period of 2008–2009 to see whether this event drives our results or not. The results suggest that excluding the crisis period from our analysis does not affect our main conclusions, and the results for peer effect in employee welfare remain significant at the 1% level. Using TNIC to define peers is a proxy that reduces many modelling and technical errors as defined above; however, to further validate our results, we also utilize Fama and French's 48-industry classification to define peer firms. Many previous studies, including Beatty, Liao and Yu (2013) and Leary and Roberts (2014), among others, have utilized this proxy to define peer firms. Column 3 of Table 6 reports the results of regressions using the net employee welfare score as defined in Equation (1), where peers are defined based on Fama and French's 48-industry classification. Again, the results show a significant and positive association between the firm's employee welfare policies and that of its peers.

In order to avoid the concerns of reverse causality and simultaneity bias, we lag our main independent and control variables in column 4 of Table 6. Our main conclusion again remains qualitatively unchanged. We also apply change regressions to see whether changes in the dependent variable (net employee welfare score) are associated with changes in the independent variable (peer firms' average employee welfare score). We control for time-invariant firm-specific unobservable characteristics by applying this regression technique, which reduces endogeneity biases in our analysis. To mitigate the correlated omitted variable bias, we run change regressions by using the first difference of all the model variables in column 5 of Table 6; yet this does not affect our main conclusion, as our main variable of interest remains significant at the 1% threshold level, concluding that omitted variable bias does not drive our main conclusion.

Lastly, we address the issue that more than 60% of observations have a zero net welfare score by running a separate regression for all the non-zero net welfare score observations. The coefficient of our variable of interest remains positive and statistically significant at the 1% significance level. All in all, we conclude that our results are robust to alternate definitions of the dependent variable, alternate sample and peer compositions, and remain significant even after controlling for reverse causality, simultaneity and omitted variable bias.

Identification strategy

Addressing the endogeneity issue is an important aspect of this research, since peers' welfare policies might be endogenously chosen and might be related to other unobservable factors that can also affect a firm's employee welfare practices. Using TNIC-based peers mitigates some of the endogeneity concerns due to the peers' dynamic nature (Hoberg and Phillips, 2016). However, we use the instrumental variable technique to further mitigate concerns about potential endogeneity problems in our results. Specifically, we create a state-level welfare index and utilize this variable as an instrument in Table 7. To create this index, we use three federal labour laws. The first is the wrongful discharge law, having sub-categories of public policy exception, good faith exception and implied contract exception; a state is free to choose any or none of these exceptions. These laws protect employees from wrongful dismissal/discharge, hence increasing job security.[6] We create a dummy variable equal to 1 for each sub-category of this law if the state implements this law, and 0 otherwise.

The second law is the Family and Medical Leave Act (FMLA) of 1993, which ensures that employers provide job-protected family and medical leave. Again, states vary in adopting this law; many states have surpassed federal FMLA laws by providing exceptional leave and other benefits to new parents. Based on the National Partnership for Women and Families 2016 report, we define California, Connecticut, District of Columbia, Hawaii, Iowa, Louisiana, Massachusetts, Minnesota, Montana, New Hampshire, New Jersey, New York, Oregon, Rhode Island, Washington and Wisconsin as states having strong family leave laws.[7] We create a dummy variable that is equal to 1 for all these states, and 0 otherwise.

The third law that we use to devise our state welfare index is the Occupational Safety and Health Act (OSHA) of 1970. This law was created to ensure safe and healthy working conditions by encouraging and assisting states in their efforts towards this cause. Similar to the above two acts, states differ in the implementation of this law. We collect data for states that have their own unique approved OSHA plans from the U.S. Department of Labor and create a dummy variable equal to 1 for all such states, and 0 otherwise.[8]

To create a state-level welfare index, we sum all the dummy variables on a state basis to create an index, based on scores in each set of laws. Further, to make this variable an industry-level instrument, we take the average peer state welfare score of all the TNIC-based peers outside the state in which the firm is headquartered. The setting meets the exclusion restriction as the average state welfare index based on other states' welfare is positively correlated with peer employee welfare through TNIC-based peers. However, this instrument is only related to the firm's employee welfare through peer average employee welfare and not otherwise. The average state welfare is expected to impact the

[6]See Autor, Donohue and Schwab (2006) for further discussion on this law and a complete explanation of subcategories.

[7]For the complete report, entitled *Expecting Better: A State by State Analysis of Laws that Help New Parents*, visit www.nationalpartnership.org. We use the report published in 2016.

[8]See https://www.osha.gov/dcsp/osp/ for additional details on OSHA state plans.

peers outside the state in which the firm resides and not the firm itself, as we do not include the state welfare score of the firm's state in calculating the average. We report the results of regression using the state-level welfare index as an instrument in Table 7. The results show that the coefficient of interest (both instrument and independent variable) is significant and positive for our 2SLS IV regressions in columns 1 and 2 at a 10% significance level, respectively.

To further remove any endogeneity bias arising from reverse causality or simultaneity bias, we use the dynamic generalized method of moments (GMM) model in column 3 of Table 7. Again, our results for independent variables remain significant at the 1% level using the dynamic GMM approach, supporting our preliminary results of strong peer effects in a firm's employee welfare policies and rejecting any endogeneity concerns.

Additional analysis

Channels of peer mimicking in employee welfare

To determine which types of pressure motivate a firm to mimic its peer firms' employee welfare policies, we examine the three isomorphic pressures. While examining the coercive pressure, we use the state-level welfare index as discussed earlier to observe a firm's reaction within a state towards its welfare index. This channel was examined in two ways. First, as reported in column 1 of Table 8, we directly regress the net employee welfare score on the state-level welfare score while controlling for other firm-specific and TNIC-based peer averages of control variables. The purpose here is to examine how firms react to the state-level welfare policy index. The results show an insignificant relationship, indicating that state-level welfare policies do not drive the firms' employee welfare policies. Second, we also examine the reaction of the focal firms towards their TNIC-based peers inside the state. This is to examine if firms mimic the employee welfare policies of their TNIC peers within the state. Since our main variable of interest is within the state, it may capture some of the state welfare policies if found to be significant. The results in column 2 of Table 8 show that a firm's welfare policy is unrelated to its local TNIC peers' welfare policies. Thus, we do not find any evidence of coercive pressures driving a firm's employee welfare policies.

Next, we examine the mimetic pressures through the channels of exposure to competition and information asymmetry. Here, we measure competition with the TNIC-based Herfindahl index (TNIC HHI), and information asymmetry is measured with the number of analysts following a firm. Higher values of TNIC HHI and analyst coverage mean low competition and information asymmetry. In column 3 of Table 8, we report the impact of peers' employee welfare policies on the firm's welfare policies conditional on its exposure to competition. In this specification, we include TNIC HHI as well as its interaction with our main independent variable as additional variables. The results show that the positive relationship between a firm's employee welfare policy and its peers' similar policies is stronger for firms that are less exposed to competition. We report the tests related to the information asymmetry channel in column 4 of Table 8. The results conclude that the positive relationship between a firm and its peers' employee welfare policies is stronger for firms with higher analyst coverage (low information asymmetry), which is consistent with the reputational channel.

Lastly, we test the normative pressure by examining the firm's reaction to the 'best fortune' peer. To create the fortune peers, we exploit the data for the 100 best companies to work for, which is taken from *Fortune Magazine*, which publishes this information as a yearly list. Ghaly, Dang and Stathopoulos (2015) have used this measure as a proxy for employee welfare in their study relating to cash holding and employee welfare. We utilize this data and generate a dummy variable equal to 1 for the year in which the firm is present in the list of 100 best companies to work for, and 0 otherwise. Similar to Balsam, Puthenpurackal and Upadhyay (2016) and Disatnik, Duchin and Schmidt (2014), the *fortune peers* measure is computed by taking the average of employee welfare scores of all fortune peer firms on an annual basis, excluding firm i, where peers are defined using TNIC. The idea here is to see whether firms follow the best employee welfare firms (normative pressures) by adopting these professional firms' best practices. Column 5 of Table 8 reports regression results using average fortune peers' employee welfare score as our main independent variable. The results show that firms follow the average welfare score of TNIC-based fortune peers, which is

validating the channel of normative pressures on peers.

Economic consequence of peer following in employee welfare

In this section, we examine the economic consequences of following peer firms in employee welfare policies. Specifically, we examine how the firm's value and innovation are affected by its decisions to mimic peers in employee welfare. We use a two-stage least squares regression (2SLS) technique, where we use firm's *peer Emp. Welfare* as an instrumented variable for its own employee welfare in the first-stage regression. In the second stage, the instrumented *peer Emp. Welfare* is used to see how it affects the firm's value measured through Tobin's Q. The results in columns 1 and 2 of Table 9 show that firms that follow peers and change their employee welfare scores accordingly tend to have better firm value. The results show the positive outcomes of mimicking peers' employee welfare in the form of better firm value.

We also examine the impact of following peers in employee welfare on firms' innovation (measured as the number of patents and patent citations). The first proxy measures innovation in terms of the number of patents received during a particular year, while the second proxy measures the quality of the innovation through the number of patent citations. Using 2SLS regression (as above), we report the first and second-stage estimation results for both proxies in columns 3–6 of Table 9. Similar to earlier estimations of firm value, a firm's employee welfare policy is instrumented through its peers' employee welfare policies. The results provide a useful insight into the innovation literature as following peers in employee welfare not only increases a firm's innovation (as we have a positive and significant association between the firm's instrumented employee welfare and the number of patents), but also increases its patent citations, as shown in column 6 of Table 9. The results are consistent with Chen *et al*.'s (2016) earlier findings, showing similar results between a firm's employee treatment and its patents.

Conclusion

Regardless of the rich literature on the causes and value consequences of human capital, little is known about how peer firms impact employee welfare practices. In this paper, we answer this question by examining how firms react to their product market peers' employee welfare policies. We find that firms mimic their peers in employee welfare policies, suggesting that firms' employee welfare policies are largely influenced by their peers' employee welfare policies. Our results are robust to alternative estimation techniques, including the alternate proxy for the dependent variable, an alternate definition of peers and other robustness tests.

To further validate our results, we performed several endogeneity tests, including instrumental variable analysis and the dynamic GMM model. Specifically, we utilize the state-level welfare measure as our instrument. Using this instrument, we find herding behaviour in firms' employee welfare policies. Our additional analysis shows that non-successful companies follow successful ones, but not vice versa. Further, we also show that mimetic and normative isomorphism play a significant role in driving peer effects. Finally, we examine the economic consequences of peer following in employee welfare by showing that it improves focal firms' value and innovation.

The findings of this study have several implications. Firstly, the peer effects and herding behaviour of employee welfare policies could be applied in other corporate policies through using the reputational herding model. Secondly, the findings of the study could be an important point of learning for firms that they should not ignore their peers' policies. Thirdly, the channel analysis for economic consequences for peer firms' policies could be interesting for firms' financial implications.

Despite the contributions this study makes, it has some limitations. The study relies on secondary data; however, considering the context of this research, using primary data in the form of a questionnaire survey and interviews with the firms' policymakers and executives will provide further insights. As policymakers and firms' executives are involved in establishing their employee welfare policies, knowing their views will provide further clarification. However, due to time and resource constraints, such an investigation is left for future research. We hope that further research in this area will provide better insights into the peer effects on firms' welfare policies.

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Supporting Information

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Supplementary information